REMARKS

In the Office Action, the Examiner has now rejected previously allowed claims 1-3 over the same references that were of record in the application when the Examiner allowed claims 1-3. Applicant respectfully submits that the Examiner was correct in her previous allowance of the claims, however, to even more particularly distinguish over these references, Applicant has amended independent claims 1 and 3. As will be discussed below, Applicant respectfully submits that Applicant's invention is not obvious in view of Takasuga or Fujine, and that neither Takasuga nor Fujine provides any disclosure for the now more-particularly claimed porous metal structure body of a bearing portion of an internal combustion engine which has the claimed attributes.

In Applicant's invention, as now more-particularly claimed, the porous metal structure body is enveloped in the cast light metal alloy member, which member is a bearing portion of an internal combustion engine. The porous metal structure body reinforces the bearing portion. Applicant respectfully submits that neither of the cited references discloses a porous metal body structure enveloped in a bearing portion of an internal combustion engine. The references are directed to pistons. Additionally, Applicant respectfully submits that the claimed characteristics of Applicant's porous metal structure body, which characteristics are defined as such because the structure body reinforces a bearing portion of an internal combustion engine, cannot be obvious in view of these two references. Takasuga and Fujine are directed to totally different purposes than Applicant's claimed invention. Even if Takasuga and Fujine disclose a porous metal structure body, Applicant's claimed characteristics for Applicant's body cannot be obvious over the references' characteristics because they are directed to a totally different purpose.

As discussed above, Applicant claims a porous metal structure body that reinforces a bearing portion of an internal combustion engine. The porous metal structure body has a maximum thickness of 6mm or less at a surface portion side thereof and a porosity of 20 to 50% at a portion other than the cavities. The

criticality of these claimed parameters for the body of the bearing portion are discussed at least at page 8 of Applicant's specification.

Takasuga discloses a manufacturing method of an aluminum alloy piston casting having a ring-like porous insert material. Takasuga discloses that volume fraction of the porous material is 3 to 50%, and a porosity of the porous material is 50 to 97%. Col. 3, lines 7 to 11. However, the porous material disclosed in Takasuga is one for a piston ring support portion, and intended to improve resistance to abrasion and fatigue. Col. 4, lines 35 to 38. Whereas Takasuga and Applicant's invention may both include a body enveloped by casting with aluminum alloy, the porous metal structure body of the present invention is one for reinforcing a bearing portion of an internal combustion engine made of light metal alloy such as aluminum alloy. Therefore, the present invention is different from Takasuga in its usage and, consequently, its required characteristics. As discussed above, in Takasuga, there is no disclosure concerning reinforcement of the bearing portion of the internal combustion engine. Therefore, Takasuga does not disclose Applicant's claimed porosity, as acknowledged by the Examiner, and Applicant respectfully submits that Applicant's claimed porosity is not obvious in view of Takasuga. Takasuga has a different porosity from Applicant because Takasuga is directed to a piston ring support. Takasuga's characteristics are chosen to improve resistance to abrasion and fatigue. Applicant's invention is a body for a bearing portion of an internal combustion engine. Applicant respectfully submits that the Examiner's argument is now moot when she argues that it would have been obvious to modify Takasuga's range to be the claimed range because the entire disclosed range of Takasuga "can be used to form a ring groove for a piston body." Again, Applicant's claimed range is not used to form a ring groove for a piston body. Applicant's claimed range is for a body for a bearing.

Further, in Applicant's invention, as claimed in dependent claim 2, the metallic powder sintered body having a porosity of more than 50% by volume is formed in the cavity by being monolithically integrated with the porous metal

structure body. Thereby, an adjustable range of a thermal expansion coefficient of the porous metal structure body can be expanded. In Takasuga, there is no disclosure concerning the matter.

Further with respect to Takasuga, at col. 6, lines 39 to 42, as cited by the Examiner in the Office Action, whereas there is a disclosure that a thickness t shown in Fig. 1 is 2 to 3 mm, the thickness t shown in Fig. 1 of Takasuga does not mean "the maximum thickness at a surface portion side", as further claimed by Applicant in claims 1 and 3. The thickness t in Fig. 1 of Takasuga merely indicates a thickness of the ring support portion. In Takasuga, there is no disclosure to make the maximum thickness at the surface portion side 6 mm or less. Therefore, Takasuga's thickness of 2 to 3 mm cannot disclose Applicant's claimed thickness of 6 mm or less because these thicknesses are directed to different structures and dimensions.

Further, in the present invention, in order to stably maintain a high mechanical strength as a structure body and to improve handling performance, the maximum thickness at the surface portion side of the porous metal structure body is 6 mm or less. If the maximum thickness at the surface portion side exceeds 6 mm, a bonding strength in enveloping by casting is decreased. See Applicant's specification at page 7, first line from the bottom to page 8, line 14. Because, in a range of porosity of the present invention, as shown in Fig. 4, the thickness range capable of impregnation may be 6 mm or less. In Takasuga, there is no disclosure that would teach to make the maximum thickness at the surface portion side 6 mm or less based on handling performance and impregnability considerations. Takasuga's thickness is not based on these considerations. Thus, it cannot be obvious from Takasuga to make the maximum thickness at a surface portion side 6 mm or less, as claimed by Applicant.

With respect to Fujine, it discloses a manufacturing method of a metal sintered body composite material having a superior seizure resistance to sliding. As shown in Figs. 8 and 9 of Fujine, the material disclosed in Fujine is intended for a member being enveloped in a piston to improve seizure resistance. Thus,

the usage and, consequently, the required properties of the body of Fujine, in the same manner as Takasuga, are widely different from those of the present invention which, as discussed above, is used to reinforce a bearing portion of an internal combustion engine. Applicant respectfully submits that there is no disclosure in Fujine concerning reinforcement of the bearing portion of an internal combustion engine.

Further, Fujine, at col. 10, line 59 to col. 11, line 2, as cited by the Examiner, discloses that a porous metal sintered body of a piston ring has an inner diameter of 40 mm and a thickness of 10 mm. However, the thickness disclosed in Fujine does not mean the maximum thickness at the surface portion side, as claimed by Applicant in the present invention. Fujine merely indicates a thickness along the axial direction. In the present invention, the maximum thickness at the surface portion side is not the thickness along the axial direction, but rather, is the thickness from the surface. Thus, again, as with Takasuga, the thickness in Fujine cannot disclose Applicant's claimed thickness because they are directed to different structures and dimensions. Further, in Fujine, there is no disclosure to determine the maximum thickness at a surface portion side 6 mm or less based on the considerations of strength of a structure, handling property, and impregnation of an aluminum alloy. Thus, to make the maximum thickness at a surface portion side 6 mm or less is not obvious based on the teachings of Fujine.

Therefore, Applicant respectfully submits that Applicant's claimed ranges are not disclosed by, and are not merely obvious variants of, Takasuga and Fujine. Rather, Applicant's claimed dimensions and ranges are directed to a porous metal structure body for reinforcement of the bearing portion of an internal combustion engine. Takasuga and Fujine disclose pistons.

Applicant respectfully submits that the application is now in condition for allowance with claims 1-3 being allowable. If there are any questions regarding this Amendment or the application in general, a telephone call to the

undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket No. 029383.52656US).

Respectfully submitted,

CROWELL & MORING LLP

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Maria Sausedo — *Date* 04/25/2006